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ABSTRACT

The National Center for Education Statistics (NCES) collects data, directs analyses, and publishes information concerning the condition of education in the United States. In this role, NCES has collected transcript data since 1982. The power of transcript data, however, can be undermined by the use of differing definitions, conflicting methodologies, and nonstandard procedures in the various studies analyzing these data. This report provides information that should lead to standardized practices and an understanding of the decisions that are made when analyzing these data. The recommendations and guidelines in this guide will be relevant mainly to those who use the student-level transcript files. Chapter 1 introduces transcript data uses. Chapter 2 covers decision rules for keeping or discarding cases in creating an analysis file, and chapters 3 and 4 contain recommendations regarding the main derived variables that researchers may want to use. An appendix lists members of the Professional Work Group that developed the procedures. (SLD)

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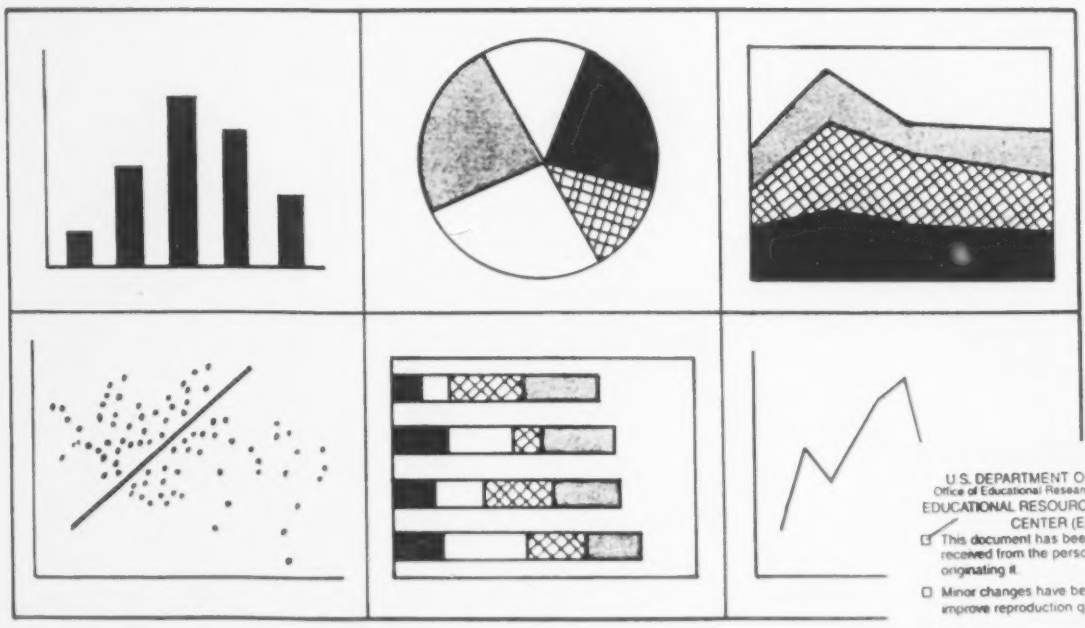
NATIONAL CENTER FOR EDUCATION STATISTICS

Working Paper Series

Procedures Guide for Transcript Studies

Working Paper No. 1999-05 March 1999



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Procedures Guide for Transcript Studies

Working Paper No. 1999-05 March 1999

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March 1999

Foreword

In addition to official NCES publications, NCES staff and individuals commissioned by NCES produce preliminary research reports that include analyses of survey results, and presentations of technical, methodological, and statistical evaluation issues.

The ***Working Paper Series*** was initiated to promote the sharing of the valuable work experience and knowledge reflected in these preliminary reports. These reports are viewed as works in progress, and have not undergone a rigorous review for consistency with NCES Statistical Standards prior to inclusion in the Working Paper Series.

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Procedures Guide for Transcript Studies

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March 1999

Preface

The National Center for Education Statistics (NCES) collects data, directs analyses, and publishes information concerning the condition of education in the United States. In this role, NCES has collected secondary school transcripts since 1982, starting with the High School and Beyond longitudinal study. Transcript data are frequently used to address national policy concerns. Transcripts are also an important component of administrative records at the local level. National transcript data provide some benchmarks against which states and localities can assess their situation.

The power of transcript data, however, can be undermined by the use of differing definitions, conflicting methodologies, and non-standard procedures in the various studies analyzing these data. This report, *Procedures Guide for Transcript Studies*, is a result of numerous researchers and policy makers reaching consensus on several aspects of analyzing transcripts. Written for the benefit of current and prospective researchers who use transcript data, it provides information that should lead to standardized practices and an understanding of the decisions that are made when analyzing these data.

Along with a companion guide, *1998 Revision of the Secondary School Taxonomy*, it is hoped that this report can facilitate better and more accurate comparisons of local, state, and national data, leading to a greater use of transcripts for policy, research, and practice.

Acknowledgments

Many individuals made substantial contributions to the preparation of this report. First and foremost, the members of the Professional Work Group (see the Appendix for a list of members) deserve many thanks for their thought-provoking discussions and contributions throughout the duration of this project. Jim Houser and Dawn Nelson also deserve appreciation for their direction as project officers for the National Center for Education Statistics (NCES).

At MPR Associates, Karen Levesque provided direction and analytic assistance to the project; Fena Neustaedter and Stacie Chun gave assistance in organizing and supporting the Professional Work Group; and Karyn Madden, Francesca Tussing, and Bobbi Kridl provided editorial and production assistance.

Special recognition is extended to Stanley Legum (Westat) and Ellen Liebman (MPR) for unearthing relevant details from related work that was completed a long time ago. Thanks are also extended to John Tuma (MPR), who left behind precise documentation of his work.

The report was reviewed within the U.S. Department of Education by Mary Frase, Marilyn McMillen, Janis Brown, Jeff Owings, Lisa Hudson, and Andrew Kolstad of NCES; Cynthia Brown and Doris Werwie of the Office of Vocational and Adult Education; Audrey Pendleton of Planning and Evaluation Service; and Milagros Lanauze of the Office of Bilingual Education and Minority Languages Affairs. In addition, Stanley Legum and Robert Haven of Westat and David Burkam of the University of Michigan also reviewed the document. The thoughtful comments provided by all of the reviewers were greatly appreciated.

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Chapter 1
Introduction

Introduction

Over the past 15 years, NCES transcript information has figured prominently in both policy and research. Answers to questions regarding the number and type of courses students take, the coherence and rigor of the programs of study that they complete, and the variation among students according to their characteristics or the communities in which they live provide the nation with a greater understanding of the challenges yet to be met within our schools. They also help us understand the progress that has been made on many of the major education initiatives that have been the focus of national and state policy. For example, to what extent do student course-taking patterns reflect efforts to raise high school graduation requirements? Is there evidence of progress on efforts to reduce students' "milling around" in the high school curriculum so that they can concentrate on completing a more focused or sequential program of study?

To improve the usefulness of transcript data for addressing these and other policy concerns, one issue that must be addressed is the variation in how transcript data are analyzed and reported. In performing work for NCES, various contractors have applied different decision rules to their analyses and have created different variables when describing students, courses, or school programs. In 1996, NCES requested a review of the procedures used to collect, analyze, and report information from high school transcripts to improve the usefulness and accuracy of transcript data. This project's wide-ranging discussions and research concerning transcript data and the opportunities and challenges they present during collection, compilation, analysis, and use are presented in two papers. This paper, *Procedures Guide for Transcript Studies*, sets forth a set of standard procedures for conducting secondary school transcript analyses with NCES data. The recommendations and guidelines presented here will be relevant mainly to those who employ the student-level transcript files, whether alone or in conjunction with other student-level files. Courses files for each transcript study also exist. A companion paper, *The 1998 Revision of the Secondary School Taxonomy*, concerns the framework used for aggregating individual course offerings when analyzing transcript data.

Organization of the Paper

This brief report documents recommendations for transcript analyses and construction of derived variables for future studies using high school transcript data. Chapter 2 covers decision rules for keeping or discarding cases in creating an analysis file. Chapters 3 and 4 present recommendations regarding the main derived variables researchers may want to use and describes how to construct them.

For the most part, these recommendations are based on the carefully reviewed decisions made for the 1996 report *Trends in Participation in Secondary Vocational Education: 1982–1992*. The *Trends* report capitalized on four data sets containing student transcripts: High School and Beyond (HS&B), 1987 High School Transcript Study (HSTS:87), 1990 High School Transcript Study (HSTS:90), and National Education Longitudinal Study of 1988 (NELS:88).[1] The precedents set by *Trends* have been followed by many researchers doing work for NCES publications, but a few studies since 1994 have departed from these decisions—either in which cases were retained for analysis or in details of how certain variables were constructed, or both. Where the recommendation differs from the general precedent established by *Trends*, the difference is explicitly noted after the recommendation and variable construction description. The other reports documented here are *Vocational Course Taking and Achievement: An Analysis of High School Transcripts and 1990 NAEP Assessment Scores* (McCormick, Tuma, and Houser, 1995); *Vocational Education in the U.S.: The Early 1990s* (Levesque et al., 1995); and *1994 High School Transcript Study Tabulations: Comparative Data on Credits Earned and Demographics for 1994, 1990, 1987, and 1982 High School Graduates* (Legum et al., 1997).

For each variable documented, this paper first makes a recommendation that frequently includes background information or general reasoning for the recommendation. Following the recommendation, specific guidelines for the construction of the variable are presented for each of five data sets (HS&B, HSTS:87, HSTS:90, HSTS:94, and NELS:88/92). Then, as explained in the paragraph above, different approaches that have been used are noted.

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[1] Although the High School Transcript Studies were performed in conjunction with the National Assessment of Educational Progress (NAEP) and in the case of 1990 and later studies used NAEP identification numbers when known, they are conceptually separate from NAEP with separate non-response at the school and student levels, sometimes separate sampling ratios, and separate weighing and variance estimation.
NELS:88 is the name of the study itself; the transcript data is contained within the 1992 Follow-up. From this point on, this paper will make reference to NELS:88/92, indicating the Second Follow-up of NELS:88 undertaken in 1992.

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Chapter 2
Defining Cases to Retain for Analysis

The fundamental decisions about which cases to keep for analysis naturally depend mainly on the purposes of that analysis. The recommendations made in this report are based mainly on the criteria used in the *Trends* report, which, like most high school transcript studies, focused on the courses taken over all four years of high school by students who graduated. The *Trends* report therefore excluded students who had left high school without graduating or who lacked a reasonable number of credits (see below for details). The *Trends* report also focused only on graduates of public schools, although that condition has been deleted from our recommendation. Clearly, if a future study had a very different purpose (for example, comparing graduates' versus dropouts' course-taking during the first two years of high school), different criteria would need to be used to select cases as the study purposes dictate. Other studies may want to compare course taking of students who were still in high school after four years, students who had dropped out, and students who had graduated. For any such future studies, decision rules used in the *Trends* report and the recommendations made here would clearly need to be reviewed and altered accordingly.

Recommendation: When the study purpose is to compare the course-taking or course achievement patterns among groups of students who have graduated from high school, include only students who completed at least 16 credits and have some positive number of English credits. Where reliable credit totals are not available, a variable that categorizes graduation status, including students who graduated and excluding those who dropped out or were still enrolled in a high school program should be used.[2] The English credit requirement is recommended because having zero English credits is a clear indication that a transcript record is faulty. (The revised Secondary School Taxonomy (SST) places English as a Second Language credits within the English category; with the revised SST, this requirement will not inadvertently exclude students in bilingual programs.)

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[2] A "floor" and "ceiling" check of credits are both useful during file construction to flag transcripts for further investigation, if the floor and ceiling are set at levels below a minimal and above a maximal course load over four years. With the advent and popularity of block schedules, 38 Carnegie units (credits) may be an appropriate upper limit. The measures need to be used judiciously; when Stanley Legum investigated several schools where many students had more than 32 credits, he found that the courses and credit totals appeared legitimate (see Legum, 1997).

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HS&B

High school graduates only (composite variable using a combination of SY12=1 [graduated], RESNLEFT=1 [graduated], and FUSTTYPE=6 [student was a senior during First Followup]); and

Adequate amount of credit available on transcript: ≥16 credits, and >0 English credits.

Note: Unusually high credit amounts (both for individual courses and as total accumulated credit) were observed for some students within the HS&B transcript data set. Research revealed that students at ten schools had received credit amounts that seemed extreme and further analysis of the titles of the courses taken by these students warranted that a correction be made for students in these ten schools. This correction has become known as the Geist correction, named for Mary Geist, who documented the corrective algorithms in her *Addendum to High School and Beyond Transcript Survey (1982): Data File User's Manual Revised Student Credits*. These edits should be made to the data file before determining the cases to be retained and running analyses of the transcript data.

HSTS:87

Regular or honors graduates only (exstat=1 or 2 only). Excluding students with exstat=3 or 4 will exclude those who received a diploma with special education adjustments or certificates of attendance; this procedure will not exclude disabled or special education students who received regular or honors diplomas;

Adequate amount of credit available on transcript: ≥16 credits, and >0 English credits.

HSTS:90

Regular or honors graduates only (exstat=1 or 2 only); exclude special education diploma recipients (as explained above in HSTS:87); and

Adequate amount of credit available on transcript: ≥16 credits, and >0 English credits.

HSTS:94

Regular or honors graduates only (exstat=1 or 2 only); exclude special education diploma recipients (as explained above in HSTS:87); and

Adequate amount of credit available on transcript: ≥16 credits, and >0 English credits.

NELS:88/92

Regular or honors graduates only (f2reasl=1 or 2 only); and

Adequate amount of credit available on transcript: ≥16 credits, and >0 English credits.

Note: Use the weight f2trscwt, which retains all students in the Second Followup plus all in the 12th-grade freshened sample.

Different Approaches to Analysis File Decisions:

Trends in Participation in Secondary Vocational Education: 1982–1992

In addition to a floor of 16 credits and positive English credit, *Trends* also used a ceiling of 32 credits to exclude students from the analysis.

The *Trends* report retained HS&B students for analysis only if they had graduated from a public high school (HSTYPE=1). Also, students had to have been members of the 1980 Sophomore cohort and have had valid records in the Transcript Survey file.

These students were classified by the reason they had left high school, in order to retain only

those students who had graduated. If the three variables SY12 (from the Second Follow-up survey), RESNLEFT (from the Transcript survey), and FUSTTYPE (from the First Follow-up survey) all indicated the student had graduated, the student was kept in the study. If the data in these three variables differed, the student was classified using the variable in this order of preference: SY12, RESNLEFT, and FUSTTYPE.

The Trends report also included students from the HSTS:87 data set with an exit status of 7 ["other" exit status, such as transfers and late graduates].

Vocational Course Taking and Achievement: An Analysis of High School Transcripts and 1990 NAEP Assessment Scores

Students from HSTS who also had linked assessment scores were studied; those with no assessment scores were excluded.

Note: This report used the 1990 HSTS and NAEP assessment scores only.

Chapter 3
Student Characteristics: Variable Definitions

The recommendations in this section concern only those variables describing the demographic characteristics of disability status and limited English proficiency status. Race–ethnicity and parental education variables are other commonly-used variables in transcript analyses; however, it is premature to provide recommendations in this paper regarding these two characteristics because of the concurrent work of other task forces and consensus-building bodies. Task forces are currently working to establish tabulation and reporting guidelines that reflect the revisions announced in October 1997 to the Office of Management and Budget's Statistical Policy Directive 15, but have not yet completed their mission.[3] Another effort is underway to establish a government-wide policy regarding the collection, analysis, and reporting of educational attainment data (including parents' education).[4]

DISABILITY STATUS

Recommendation: In transcript studies, the factor of interest to most researchers is whether a student disability interfered with school performance or if students with disabilities have course-taking patterns that differ widely from those of other students. Although disability status variables are important for a variety of reasons, it is recommended that researchers create a single *has disability/no disability* variable. This variable should be based on any of the following: the existence of a student's disability, the presence of an Individual Educational Program (IEP), or enrollment in a special education course or program.

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[3]The minimum race-ethnicity categories specified in the revised Directive 15 include (in alphabetical order) American Indian or Alaska Native; Asian; Black or African American; Hispanic or Latino; Native Hawaiian or Other Pacific Islander; and White. Respondents to any survey conducted using the revised Directive 15 will be allowed to choose more than one designation.

[4]Parental education was defined in *Trends* as the higher of the both parents' educational attainment and was categorized as Less than high school completion; High school completion; Some postsecondary education; BA/BS degree; Advanced degree; and Missing. Although the HSTS data sets do not include information on parental education, these data can be obtained for HSTS students who also participated in NAEP by merging the HSTS data file with the appropriate NAEP student data file using the students' NAEP identification number. Parental education variables appear in the HS&B and NELS:88/92 data files.

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Previous studies used *handicapped/not handicapped* as the la a for disability status. *Has disability/no disability* should be used in the future.

Creating a single disability stat variable from all four data sets is difficult at best, bec. use HS&B uses a si ic tly different definition from those in the other three surveys. However, for those who want to use a variable for disabled students from HS&B, the code is provided here.

HS&B (1982)

Has disability	If BB011H=2 or BB011I=2 (student had been in a special program for the educationally or physically handicapped), or BB087A=1, any of BB087C–BB087G=1 (student had a specific learning disability, was hard of hearing or deaf, had a speech disability, orthopedic handicap, or other health impairment), or BB088=2 (student had a physical condition that limits work on a job or chances for more education), or FY9H=2 or FY9I=2 (student was in a special program for the educ nally or physically handicapped in junior or senior year), or FY A–FY103G=1 or FY104=2 (student had any of the specific disa ties listed above, or a visual handicap that was not corrected, or a limiting condition as listed above), or SY26AK1=1 or SY26AK2=1 (student received scholarship, fellowship, grant, or benefits from the Division of Vocational Rehabilitation Education), student was considered handicapped.
No disability	All others.

Note for HS&B: The code above uses the same choices as the HANDICAP composite variable from the Third Followup of HS&B. (HANDICAP itself should not be used because not all records in the transcript file have a value for it.) Students provided item responses.

HSTS:87

Has disability	If student had a disability listed in Q5 of the Special Education Student Questionnaire, had a nonzero value for Q6D (time spent in special education classroom), or had a value from 1–3 for Q7A, Q7B, or Q7C (severity of physical, psychosocial, and cognitive limitations), student was considered disabled.
No disability	If none of the above statements was true.

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HSTS:90 (HCFLAG)

Has disability	If student was listed as having an IEP on the IEP/LEP Student Questionnaire or at least one item of Q06–Q15 was non-zero in the "student with a disability" section of that survey, student was considered disabled. Items Q06–Q15 of the 1990 HSTS offers detail about the specific disability, severity of disability, and special education programs.
No disability	If none of the above statements was true.

HSTS:94 (HCFLAG)

Has disability	If student had an IEP, Q1 on the IEP/LEP Questionnaire was either 1 (A disability [physical or mental disability]) or 3 (Both a disability and limited English proficiency), or if a specific handicapping condition was identified in Q5 and Q7 indicated that the student was in a special education program for some part of the day, student was considered disabled.
No disability	Otherwise, student was not considered disabled.

Note for HSTS data files: EXSTAT also indicates receipt of special education—students with a value of 3 are those who received a diploma with special education adjustments, and students with a value of 4 received certificates of attendance. However, unless the cases retained for analysis deviated from the guidelines of this document, these students will not be in the analysis file (see chapter 2). School staff provided item responses.

NELS:88/92 (F2RSPFLG)

Has disability	If F2RSPFLG=01 or 04 (In the flag for specialized courses or programs, student was categorized as having participated in a special education course or program [01] or participated in special education and bilingual education [04]).
No disability	If F2RSPFLG=02, 03, 05, 06 or 98 (In the flag for specialized courses or programs, student was not categorized as having participated in a special education course or program).

Note: The flag used in NELS only indicates participation in a special education course or program (on the assumption that students without some kind of disability would not be part of such a course or program).

Different Approaches to Disability Status:

Vocational Education in the U.S.: The Early 1990s, when using the NELS:88/92 data, relied on parent and teacher reports of whether the student was disabled, as opposed to student-reported data as in the other surveys. (If BYHANDPR=1 or BYHANDTR=1, then disabled; otherwise, the student was not disabled.) The variable BYHANDPR indicates whether the parent reported that the student was enrolled in a program for the orthopedically handicapped or learning disabled, while

BYHANDTR indicates whether either of two teachers reported that the student had any handicaps that interfered with school performance.

Although the groups identified as disabled by these two measures (parent and teacher reports) will not match perfectly, the academic and vocational course-taking patterns among the two groups of students are similar. Therefore, it is not critical which variable is chosen for this measure.

LIMITED ENGLISH PROFICIENCY STATUS

Recommendation: Researchers should use the coding below for the HSTS and NELS data sets to distinguish Limited English Proficient (LEP) students from non-LEP students. (A comparable variable was not included in the HS&B and HSTS:87 surveys.)

HSTS:90 (Q01B in IEP/LEP file)

LEP	If Q01B=1, student was Limited English Proficient.
Not LEP	If Q01B=0, student was not Limited English Proficient.

HSTS:94 (Q01B in IEP/LEP file)

LEP	If Q01B=1, student was Limited English Proficient.
Not LEP	If Q01B=0, student was not Limited English Proficient.

NELS:88/92 (BYLEP)

LEP	If bylep=1, student was Limited English Proficient.
Not LEP	If bylep ne 1, student was not Limited English Proficient.

Note: The NELS:88/92 composite variable BYLEP included in the data set uses the student's Base Year self-report and both teachers' reports; if any one of these classified the student as LEP, then s/he was counted as LEP. The HSTS LEP information is taken from the IEP/LEP questionnaire, filled out by staff.

Chapter 4
School Program/Coursework Characteristics: Variable Definitions

In addition to distinguishing students based on their own personal characteristics or those of their families, interest remains high in distinguishing students based on their high school program of work—a specialization in either academic or vocational coursework, or both; the type of vocational concentration, if any; and adherence to the New Basics recommended curriculum. It is possible to define these distinctions and then, according to actual transcript data, determine the differences in achievement (or other outcomes) of those students who fall within the defined categories. The following section presents recommendations regarding variables that reflect program and coursework characteristics and includes descriptions for construction. Many of the variable construction descriptions refer to the Secondary School Taxonomy division of coursework (the variables beginning with *r*); the recommendations reflect revisions to the SST made in the report *1998 Revision of the Secondary School Taxonomy*. When mentioned below, credits refer to Carnegie units.

SCHOOL PROGRAM

Recommendation: Defining what is meant by an "academic" or "vocational" program remains of interest; several states provide different kinds of diplomas or certification seals based on the types and numbers of courses completed by students. "Tech-Prep" and "College Prep" (although the two are not mutually exclusive) have also become popular program concentrations, as more schools have moved to provide all students with defined programs of study.

To construct the school program variable, researchers will first chose between the strict specialist definition and the more lenient but still meaningful concentration definition for both academic and vocational programs areas. Researchers must then tabulate statistics for those students who meet the criteria of each of the four categories: both academic and vocational criteria; the academic criteria only; the vocational criteria only; and none of the criteria.

Below, possible combinations for the school program variable are presented, then the two types (specialist and concentrator) are defined for academic and vocational program areas.

Possible combinations for School Program Variable:

A	B	C	D
Acad. Specialist	Acad. Specialist	Acad. Concentrator	Acad. Concentrator
Vocat'l Specialist	Vocat'l Concentrator	Vocat'l Specialist	Vocat'l Concentrator
Dual Specialist	Both	Both	Dual Concentrator
Neither	Neither	Neither	Neither

Academic specialist

Student earned at least 4 credits in English (r1_3);
at least 3 credits in mathematics at the Algebra 1 level or higher (r1_14 through r1_18);
at least 2 credits in biology, chemistry, or physics (r1_22, r1_23, or r1_24);
at least 2 credits in social studies (r1_4) with at least 1 credit in US or world history (r1_41 or r1_42);
at least 2 credits in a single foreign language (r1_6 categories 1 through 6); and
does not also meet the criteria for vocational specialization or concentration.

Academic concentrator

Student earned at least 4 credits in English (r1_3);
at least 3 credits in mathematics (r1_1
at least 3 credits in science (r1_2);
at least 3 credits in social studies (r1_4); and
does not also meet the criteria for vocational specialization or concentration.

Vocational specialist

Student earned at least 4 credits in a single SLMP vocational area (r2_C categories), with at least 2 of these credits in that SLMP's 2nd-level or higher courses or co-op/work experience coursework; and
does not also meet the criteria for academic specialization or concentration.

Vocational concentrator

Student earned at least 3 credits total in a single Specific Labor Market Preparation (SLMP) vocational area (r2_C categories); and
does not also meet the criteria for academic specialization or concentration.

Note: Written above as mutually exclusive for the sake of brevity, definitions for students who meet "both" criteria must exclude the last phrase ("and does not also meet the criteria of..."), or else the defined set will be empty.

Example:

If combination B were chosen for a particular analyses, the exact definitions would be:

Academic specialist

Student earned at least 4 credits in English (r1_3); at least 3 credits in mathematics at the Algebra 1 level or higher (r1_14 through r1_18); at least 2 credits in biology, chemistry, or physics (r1_22, r1_23, or r1_24); at least 2 credits in social studies (r1_4) with at least 1 credit in US or world history (r1_41 or r1_42); at least 2 credits in a single foreign

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language (r1_6 categories 1 through 6); and does not also meet the criteria for vocational concentration.

Vocational concentrator

Student earned at least 3 credits total in a single Specific Labor Market Preparation (SLMP) vocational area (r2_C categories); and does not also meet the criteria for academic specialization or concentration.

Both

Student earned at least 4 credits in English (r1_3); at least 3 credits in mathematics at the Algebra 1 level or higher (r1_14 through r1_18); at least 2 credits in biology, chemistry, or physics (r1_22, r1_23, or r1_24); at least 2 credits in social studies (r1_4) with at least 1 credit in US or world history (r1_41 or r1_42); at least 2 credits in a single foreign language (r1_6 categories 1 through 6); and at least 3 credits total in a single Specific Labor Market Preparation (SLMP) vocational area (r2_C categories).

Neither

Student does not meet the criteria for academic specialization nor for vocational concentration.

Different Approaches to School Program Specialization:

The *1987*, *1990*, and *1994 High School Transcript Study Tabulations* used the following definitions for program concentration:

Academic	Student earned at least 12 credits in mathematics, science, English, and social studies (together), and less than 3 in any SLMP field;
Vocational	Student earned less than 12 credits in mathematics, science, English, and social studies (together), and at least 3 in any single SLMP field;
Both	Student earned at least 12 credits in mathematics, science, English, and social studies (together), and at least 3 in any single SLMP field;
Neither	Student earned credits insufficient to meet either the academic or vocational requirements as specified above.

Vocational Education in the U.S.: The Early 1990s used the following categories for program specialization:

College prep specialist

Student earned *at least* 4 credits in English; 3 credits in mathematics, with at least 1 credit in Algebra or a higher mathematics course; 3 credits in science, with at least 1 credit in chemistry or physics; and 2 credits in a single foreign language;

Vocational specialist

Student earned at least 4 credits in a single SLMP vocational area, with at least 2 of these credits in that SLMP's 2nd-level or higher courses;

Other

Students fulfilled neither of the conditions above.

Note: If a student fulfilled requirements for both college prep and vocational specializations, *Vocational Education in the U.S.* counted them in the vocational category, while *Vocational*

Course Taking and Achievement cou[illegible] them in the college prep category. There were only a small number of such cases, so estim[illegible]did not differ greatly due to this difference in decision.

NEW BASICS REQUIREMENTS

Recommendation: The National Commission on Excellence in Education recommended that all students earn at least 4 credits in English, 3 credits each in mathematics, science, and social studies, and 1/2 credit in computer science. These are often called the New Basics requirements. For those students intending to go on to college, the Commission added an additional recommendation of 2 credits in a single foreign language. The following categories should be used when defining which combinations of academic credit areas a student met.

College Bound (CB) Core Curriculum
Student earned at least 4 credits in English (r1_3), at least 3 credits in mathematics (r1_1), at least 3 credits in science (r1_2), at least 3 credits in social studies (r1_4), at least 1/2 credit in computer science (see computer science note below), and at least 2 credits in a single foreign language (r1_6 categories 1 through 6);

Core Curriculum
Student earned at least 4 credits in English (r1_3), at least 3 credits in mathematics (r1_1), at least 3 credits in science (r1_2), at least 3 credits in social studies (r1_4), and at least 1/2 credit in computer science (see computer science note below);

CB Core, except computer science
Student earned at least 4 credits in English (r1_3), at least 3 credits in mathematics (r1_1), at least 3 credits in science (r1_2), at least 3 credits in social studies (r1_4), and at least 2 credits in a single foreign language (r1_6 categories 1 through 6);

Core, except computer science
Student earned at least 4 credits in English (r1_3), at least 3 credits in mathematics (r1_1), at least 3 credits in science (r1_2), and at least 3 credits in social studies (r1_4);

Less than Core
Student earned at least 4 credits in English (r1_3), at least 2 credits in mathematics (r1_1), at least 2 credits in science (r1_2), and at least 3 credits in social studies (r1_4);

All other patterns
All other cases in the sample.

Note: Core, except computer science is known as "Law 1" in the HSTS; Less than Core is "Law 2" in the HSTS.

Computer science note:
The variable *comprel* was defined during the 1998 revision of the Secondary School Taxonomy and consists of the CSSC codes that denote computer-related coursework. The following CSSC course codes are included in *comprel*.

01.0161, 06.1200, 07.0300, 07.0311, 07.0321, 07.0322, 07.0331, 07.0332, 07.0341, 07.0351, 07.0352, 07.0361, 07.0371, 07.0641, 07.0642, 07.0643, 07.0711, 07.0712, 07.0713, 07.0721, 11.0100, 11.0111, 11.0121, 11.0122, 11.0131, 11.0132, 11.0141, 11.0151, 11.0200, 11.0211,

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11.0212, 11.0213, 11.0221, 11.0231, 11.0232, 11.0241, 11.0242, 11.0251, 11.0252, 11.0261, 11.0271, 11.0300, 11.0311, 11.0312, 11.0313, 11.0321, 11.0400, 11.0500, 11.9900, 21.0127, 15.0431, and 50.0811.

Different Approaches to New Basics Requirements

Vocational Course Taking and Achievement used the following breakdowns of adherence to the New Basics requirements:

All recommendations met
Student earned at least 4 credits in English, 3 in mathematics, 3 in science, 3 in social studies, 2 in foreign language, and 1/2 credit in computer science;

All recommendations met except computer science and foreign language
4 English, 3 math, 3 science, 3 social studies (not computer science, not foreign language);

Lacking one credit in adherence to science and social studies recommendations
4 English, 3 math, 2 science, and 2 social studies;

Lacking one credit in adherence to math, science and social studies recommendations
4 English, 2 math, 2 science, and 2 social studies;

Some other combination
(all others).

AREA OF VOCATIONAL CONCENTRATION

Recommendation: Use the following areas of vocational concentration, which come directly from the Secondary School Taxonomy, using the more lenient school program concentration (at least three credits in a specific labor market preparation area).

No vocational concentration
Student did not earn at least 3 credits in any SLMP field (SST 2_C categories).

Agriculture and Renewable Resources
Student earned at least 3 credits in SST category 2_C01.

Business
Student earned at least 3 credits in SST category 2_C02.

Marketing and Distribution
Student earned at least 3 credits in SST category 2_C03.

Health Care
Student earned at least 3 credits in SST category 2_C04.

Public and Protective Services
Student earned at least 3 credits in SST category 2_C05.

Trade and Industry
Student earned at least 3 credits in SST category 2_C06.

Technology and Communications
Student earned at least 3 credits in SST category 2_C07.

Personal and Other Services
Student earned at least 3 credits in SST category 2_C08.

Food Service and Hospitality
Student earned at least 3 credits in SST category 2_C09.

Child Care and Education
Student earned at least 3 credits in SST category 2_C10.

Note: In *Trends*, if a student earned at least 3 credits in two or more vocational areas, they were assigned to the area in which they had earned the most credits. In cases where the number of credits is the same, they were assigned to the first area of concentration on the list. In cases such as this, it may be prudent to assign students based on the number of credits earned in 2nd-level or higher coursework.

GRADE POINT AVERAGE (GPA)

Recommendation: A variable reflecting a student's GPA (such as the "Mostly As, Mostly Bs, Mostly Cs" variable used in *Trends*) provides a quick indication to readers of students' success in their secondary coursetaking. The GPA variable can be constructed for all graded coursework or for subsections of coursework (for example, GPA in academic courses only).

A student's grade point average is calculated by multiplying the standard grade by the credit received for each course attempted, summing those products, and dividing the total by the sum of the credits. Noncredit courses are not included in this calculation.

Grade information as reported on transcripts vary widely, but is normally expressed as a numeric or letter grade. Typical letter grades include A, B, C, D, and F, but can also include E, P, W, and others. In addition, some schools include "+" and "-" on the letters to further distinguish students' course performance. When expressed as numbers, the proper conversion of the grades into letters also varies across schools and school districts.

The 1994 HSTS study used the following conversion unless documentation from the school specified a different conversion:

Numeric grade	Letter grade standard
90–100	4 (=A)
80–89	3 (=B)
70–79	2 (=C)
60–69	1 (=D)
<60	0 (=F)

Another popular conversion algorithm used by schools is as follows:

Numeric grade	Letter grade standard
94–100	4 (=A)
85–93	3 (=B)
75–84	2 (=C)
65–74	1 (=D)
<65	0 (=F)

No recommendation is made here regarding the most appropriate conversion algorithm; it depends upon the depth of information received from the schools, and whether the schools without information are located within a state where one method is typically used.

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Appendix
Professional Work Group Members

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Listing of NCES Working Papers to Date

Please contact Angela Miles at (202) 219-1761 (angela_miles@ed.gov)
if you are interested in any of the following papers

Number	Title	Contact
94-01 (July)	Schools and Staffing Survey (SASS) Papers Presented at Meetings of the American Statistical Association	Dan Kasprzyk
94-02 (July)	Generalized Variance Estimate for Schools and Staffing Survey (SASS)	Dan Kasprzyk
94-03 (July)	1991 Schools and Staffing Survey (SASS) Reinterview Response Variance Report	Dan Kasprzyk
94-04 (July)	The Accuracy of Teachers' Self-reports on their Postsecondary Education: Teacher Transcript Study, Schools and Staffing Survey	Dan Kasprzyk
94-05 (July)	Cost-of-Education Differentials Across the States	William Fowler
94-06 (July)	Six Papers on Teachers from the 1990-91 Schools and Staffing Survey and Other Related Surveys	Dan Kasprzyk
94-07 (Nov.)	Data Comparability and Public Policy: New Interest in Public Library Data Papers Presented at Meetings of the American Statistical Association	Carrol Kindel
95-01 (Jan.)	Schools and Staffing Survey: 1994 Papers Presented at the 1994 Meeting of the American Statistical Association	Dan Kasprzyk
95-02 (Jan.)	QED Estimates of the 1990-91 Schools and Staffing Survey: Deriving and Comparing QED School Estimates with CCD Estimates	Dan Kasprzyk
95-03 (Jan.)	Schools and Staffing Survey: 1990-91 SASS Cross-Questionnaire Analysis	Dan Kasprzyk
95-04 (Jan.)	National Education Longitudinal Study of 1988: Second Follow-up Questionnaire Content Areas and Research Issues	Jeffrey Owings
95-05 (Jan.)	National Education Longitudinal Study of 1988: Conducting Trend Analyses of NLS-72, HS&B, and NELS:88 Seniors	Jeffrey Owings

Listing of NCES Working Pape[illegible]Date--Continued

Number		Contact
95-06 (Jan.)	National Education Long[illegible]ial Study of 1988: Conducting Cross-Cohort[illegible]nparisons Using HS&B, NAEP, and NELS:88 Aca[illegible]mic Tran[illegible] Data	Jeffrey Owings
95-07 (Jan.)	National Education Longit[illegible]inal Stud[illegible] 1988: Conducting Trend Analyses HS&B and NELS:88 Sophomore Cohort Dropouts	Jeffrey Owings
95-08 (Feb.)	CCD Adjustment to the 1990-91 SASS: A Comparison of Estimates	Dan Kasprzyk
95-09 (Feb.)	The Results of the 1993 Teacher List Val[illegible]ion Study (TLVS)	Dan Kasprzyk
95-[illegible]0 (Feb.)	The Results of the 1991-9[illegible]eacher Follo[illegible]Survey (TFS) Reinterview and E[illegible]sive Reconci[illegible]n	Dan Kasprzyk
95-11 (Mar.)	Measuring Instru[illegible]on, C[illegible]ulum Content, and Instructional Re[illegible]es: The Statu[illegible]ecent Work	Sharon Bobbitt & John Ralph
95-12 (Mar.)	Rural Education Data User's Gui[illegible]	Samuel Peng
95-13 (Mar.)	Assessing Students with Disabilit[illegible]and Limited English Proficiency	James Houser
95-14 (Mar.)	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
95-15 (Apr.)	Classroom Instructional Processes: A Review of Existing Meas[illegible]ent Approaches and Their Applicability t[illegible] Teacher Follow-up Survey	Sharon Bobbitt
95-16 (Apr.)	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95-17 (May)	Estimates of Expenditures for Private K-12 Schools	Stephen Broughman
95-18 (Nov.)	An Agenda for Research on Teachers and Schools: Revisiting NCES' Schools and Staffing Survey	Dan Kasprzyk
96-01 (Jan.)	Methodological Issues in the Study of Teachers' Careers: Critical Features of a Truly Longitudinal Study	Dan Kasprzyk

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Number	Title	Contact
96-02 (Feb.)	Schools and Staffing Survey (SASS): 1995 Selected papers presented at the 1995 Meeting of the American Statistical Association	Dan Kasprzyk
96-03 (Feb.)	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
96-04 (Feb.)	Census Mapping Project/School District Data Book	Tai Phan
96-05 (Feb.)	Cognitive Research on the Teacher Listing Form for the Schools and Staffing Survey	Dan Kasprzyk
96-06 (Mar.)	The Schools and Staffing Survey (SASS) for 1998-99: Design Recommendations to Inform Broad Education Policy	Dan Kasprzyk
96-07 (Mar.)	Should SASS Measure Instructional Processes and Teacher Effectiveness?	Dan Kasprzyk
96-08 (Apr.)	How Accurate are Teacher Judgments of Students' Academic Performance?	Jerry West
96-09 (Apr.)	Making Data Relevant for Policy Discussions: Redesigning the School Administrator Questionnaire for the 1998-99 SASS	Dan Kasprzyk
96-10 (Apr.)	1998-99 Schools and Staffing Survey: Issues Related to Survey Depth	Dan Kasprzyk
96-11 (June)	Towards an Organizational Database on America's Schools: A Proposal for the Future of SASS, with comments on School Reform, Governance, and Finance	Dan Kasprzyk
96-12 (June)	Predictors of Retention, Transfer, and Attrition of Special and General Education Teachers: Data from the 1989 Teacher Followup Survey	Dan Kasprzyk
96-13 (June)	Estimation of Response Bias in the NHES:95 Adult Education Survey	Steven Kaufman
96-14 (June)	The 1995 National Household Education Survey: Reinterview Results for the Adult Education Component	Steven Kaufman

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Number	Title	Contact
96-15 (June)	Nested Structures: District-Level Data in the Sch and Staffing Survey	Dan Kasprzyk
96-16 (June)	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
96-17 (July)	National Postsecondary Student Aid Stu : 1996 Field Test Methodology Rep	Andrew G. Malizio
96-18 (Aug.)	Assessment of Social C petence, Ad Behaviors, and Approac to Learning n Young Children	Jerry W
96-19 (Oct.)	Assessment and Analysis of School-Level Expenditures	W illiam Fowler
96-20 (Oct.)	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96-21 (Oct.)	1993 National Household Edu ation Survey (NHES:93) Questionnaires: Screener, School Readiness, and School Safety and Disci e	Kathryn Chandler
96-22 (Oct.)	1995 National Household Education Su y (NHES:95) Questionnaires: Screener, E y Childhood Program Participation, and Adult Education	Kathryn Chandler
96-23 (Oct.)	Linking Student Data to SASS: Why, When, How	Dan Kasprzyk
96-24 (Oct.)	National Assessment of Teacher Quality	Dan Kasprzyk
96-25 (Oct.)	Measures of Inservice Professional Development: Suggested Items for the 1998-1999 Schools and Staffing Survey	Dan Kasprzyk
96-26 (Nov.)	Improving the Coverage of Private Elementary-Secondary Schools	Steven Kaufman
96-27 (Nov.)	Intersurvey Consistency in NCES Private School Surveys for 1993-94	Steven Kaufman

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96-28 (Nov.)	Student Learning, Teaching Quality, and Professional Development: Theoretical Linkages, Current Measurement, and Recommendations for Future Data Collection	Mary Rollefson
96-29 (Nov.)	Undercoverage Bias in Estimates of Characteristics of Adults and 0- to 2-Year-Olds in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
96-30 (Dec.)	Comparison of Estimates from the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-01 (Feb.)	Selected Papers on Education Surveys: Papers Presented at the 1996 Meeting of the American Statistical Association	Dan Kasprzyk
97-02 (Feb.)	Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-03 (Feb.)	1991 and 1995 National Household Education Survey Questionnaires: NHES:91 Screener, NHES:91 Adult Education, NHES:95 Basic Screener, and NHES:95 Adult Education	Kathryn Chandler
97-04 (Feb.)	Design, Data Collection, Monitoring, Interview Administration Time, and Data Editing in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-05 (Feb.)	Unit and Item Response, Weighting, and Imputation Procedures in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-06 (Feb.)	Unit and Item Response, Weighting, and Imputation Procedures in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-07 (Mar.)	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97-08 (Mar.)	Design, Data Collection, Interview Timing, and Data Editing in the 1995 National Household Education Survey	Kathryn Chandler

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97-09 (Apr.)	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
97-10 (Apr.)	Report of Cognitive Research on the Public and Private School Teacher Questionnaires for the Schools and Staffing Survey 1993-94 School Year	Dan Kasprzyk
97-11 (Apr.)	International Comparisons of Inservice Professional Development	Dan Kasprzyk
97-12 (Apr.)	Measuring School Reform: Recommendations for Future SASS Data Collection	Mary Rollefson
97-13 (Apr.)	Improving Data Quality in NCES: Database-to-Report Process	Susan Ahmed
97-14 (Apr.)	Optimal Choice of Periodicities for the Schools and Staffing Survey: Modeling and Analysis	Steven Kaufman
97-15 (May)	Customer Service Survey: Common Core of Data Coordinators	Lee Hoffman
97-16 (May)	International Education Expenditure Comparability Study: Final Report, Volume I	Shelley Burns
97-17 (May)	International Education Expenditure Comparability Study: Final Report, Volume II, Quantitative Analysis of Expenditure Comparability	Shelley Burns
97-18 (June)	Improving the Mail Return Rates of SASS Surveys: A Review of the Literature	Steven Kaufman
97-19 (June)	National Household Education Survey of 1995: Adult Education Course Coding Manual	Peter Stowe
97-20 (June)	National Household Education Survey of 1995: Adult Education Course Code Merge Files User's Guide	Peter Stowe
97-21 (June)	Statistics for Policymakers or Everything You Wanted to Know About Statistics But Thought You Could Never Understand	Susan Ahmed
97-22 (July)	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman

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Number	Title	Contact
97-23 (July)	Further Cognitive Research on the Schools and Staffing Survey (SASS) Teacher Listing Form	Dan Kasprzyk
97-24 (Aug.)	Formulating a Design for the ECLS: A Review of Longitudinal Studies	Jerry West
97-25 (Aug.)	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
97-26 (Oct.)	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
97-27 (Oct.)	Pilot Test of IPEDS Finance Survey	Peter Stowe
97-28 (Oct.)	Comparison of Estimates in the 1996 National Household Education Survey	Kathryn Chandler
97-29 (Oct.)	Can State Assessment Data be Used to Reduce State NAEP Sample Sizes?	Steven Gorman
97-30 (Oct.)	ACT's NAEP Redesign Project: Assessment Design is the Key to Useful and Stable Assessment Results	Steven Gorman
97-31 (Oct.)	NAEP Reconfigured: An Integrated Redesign of the National Assessment of Educational Progress	Steven Gorman
97-32 (Oct.)	Innovative Solutions to Intractable Large Scale Assessment (Problem 2: Background Questionnaires)	Steven Gorman
97-33 (Oct.)	Adult Literacy: An International Perspective	Marilyn Binkley
97-34 (Oct.)	Comparison of Estimates from the 1993 National Household Education Survey	Kathryn Chandler
97-35 (Oct.)	Design, Data Collection, Interview Administration Time, and Data Editing in the 1996 National Household Education Survey	Kathryn Chandler
97-36 (Oct.)	Measuring the Quality of Program Environments in Head Start and Other Early Childhood Programs: A Review and Recommendations for Future Research	Jerry West

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97-38 (Nov.)	Reinterview Results for the Parent and Youth Components of the 1996 National Household Education Survey	Kathryn Chandler
97-39 (Nov.)	Undercoverage Bias in Estimates of Characteristics of Households and Adults in the 1996 National Household Education Survey	Kathryn Chandler
97-40 (Nov.)	Unit and Item Response Rates, Weighting, and Imputation Procedures in the 1996 National Household Education Survey	Kathryn Chandler
97-41 (Dec.)	Selected Papers on the Schools and Staffing Survey: Papers Presented at the 1997 Meeting of the American Statistical Association	Steve Kaufman
97-42 (Jan. 1998)	Improving the Measurement of Staffing Resources at the School Level: The Development of Recommendations for NCES for the Schools and Staffing Survey (SASS)	Mary Rollefson
97-43 (Dec.)	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
97-44 (Dec.)	Development of a SASS 1993-94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98-01 (Jan.)	Collection of Public School Expenditure Data: Development of a Questionnaire	Stephen Broughman
98-02 (Jan.)	Response Variance in the 1993-94 Schools and Staffing Survey: A Reinterview Report	Steven Kaufman
98-03 (Feb.)	Adult Education in the 1990s: A Report on the 1991 National Household Education Survey	Peter Stowe
98-04 (Feb.)	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.

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98-06 (May)	National Education Longitudinal Study of 1988 (NELS:88) Base Year through Second Follow-Up: Final Methodology Report	Ralph Lee
98-07 (May)	Decennial Census School District Project Planning Report	Tai Phan
98-08 (July)	The Redesign of the Schools and Staffing Survey for 1999-2000: A Position Paper	Dan Kasprzyk
98-09 (Aug.)	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
98-10 (Aug.)	Adult Education Participation Decisions and Barriers: Review of Conceptual Frameworks and Empirical Studies	Peter Stowe
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98-13 (Oct.)	Response Variance in the 1994-95 Teacher Follow-up Survey	Steven Kaufman
98-14 (Oct.)	Variance Estimation of Imputed Survey Data	Steven Kaufman
98-15 (Oct.)	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
98-16 (Dec.)	A Feasibility Study of Longitudinal Design for Schools and Staffing Survey	Stephen Broughman
98-17 (Dec.)	Developing the National Assessment of Adult Literacy: Recommendations from Stakeholders	Sheida White

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1999-01 (Jan.)	A Birth Cohort Study: Conceptual and Design Considerations and Rationale	Jerry West
1999-02 (Feb.)	Tracking Secondary Use of the Schools and Staffing Survey Data: Preliminary Results	Dan Kasprzyk
1999-03 (Feb.)	Evaluation of the 1996-97 Nonfiscal Common Core of Data Surveys Data Collection, Processing, and Editing Cycle	Beth Young
1999-04 (Feb.)	Measuring Teacher Qualifications	Dan Kasprzyk
1999-05 (Mar.)	Procedures Guide for Transcript Studies	Dawn Nelson

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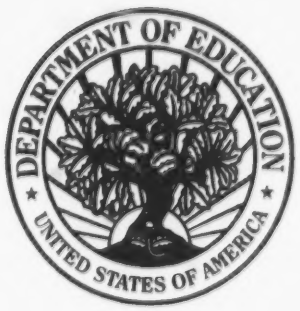
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